

REMARKS

The Office Action mailed July 6, 2001, has been received and its contents carefully noted. In order to advance the prosecution, the specification has been editorially amended, and section headings and language paragraphs have been added in conformance with U.S. patent practice.

Claim Rejection - 35 U.S.C. § 112

Claims 1-4 have been amended to particularly point out and distinctly claim the invention. Claims 5-9 have been added to further recite the invention. Claims 1-9 are now pending in the application.

Extension of Time

A Petition has been filed under the provisions of 37 CFR §1.136 for an extension of time to respond to the Office Action of July 6, 2001. The appropriate fee set forth in 37 CFR § 1.17 is filed herewith.

Claim Rejections - 35 USC § 102

The Examiner rejected claims 1-4 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,076,776 to

Yamada et al. It is respectfully submitted that the present claimed invention is patentable over Yamada et al. for the following reasons. Accordingly, reconsideration of the Examiner's rejection is requested.

The Examiner cites Yamada et al which discloses a blow head, in which the distributor channels are arranged in a planar area. Figure 4, as discussed by the Examiner, also shows a planar head. The planar head in Yamada et al brings about, especially in multilayered blow heads a very high vertical force so that the individually stacked rings must be pressed together with high force, that is, with very strong screws. However, in the case of the present invention, all of the distributor channels lie on the shell of a truncated cone so that the vertical forces decrease significantly owing to this situation. The single central melt feed, where the helical distributors are embedded into an external vertical cylindrical surface, cannot have a negative impact.

More particularly, amended claim 1 and new claim 5 recite an extruder head having a central annular channel with inner and outer walls. The extruder further includes a plurality of internal and external shells of stacked, conical insert members having truncated conical channels and forming small diameter opening annular slits for emptying polymer melts into the inside and outside walls of the central annular channel for

producing multilayered tubes made of thermoplastic material. These features of claims 1 and 5 are not found in the prior art.

Amended claim 2 and new claim 6 recite that the internal and external shells of each insert member define the truncated conical channels for feeding the polymer melts into the central annular channel. Claim 6 also recites that the internal truncated conical annual channels and the external truncated conical annular channels slope in opposite directions at approximately the same angle to the central annular channel. It is submitted that these features are not taught or suggested by Yamada et al.

Amended claim 3 and new claim 7 recite that the internal and external annular slits lie in the same radial plane, and that the internal and external truncated conical annular channels communicate with the central annular channel in approximately the same radial plane. These claims are patentable over the prior art in view of the independent claims.

Amended claim 4 and new claim 8 recite that the internal and external shells of the conical insert members are defined by two oppositely spiraled channels, whose depth tapers off in a direction toward said central annular channel. The art of record teaches planar flat multilayered heads and not conical or spiral. Thus, these features are patentable over the art of record.

New claim 9 recites that the internal and external truncated conical channels are substantially concentrically spaced around said central annular channel. This feature is not taught or suggested by Yamada et al or the prior art.

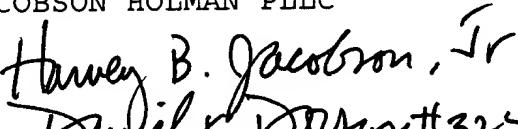
Conclusion

In view of the foregoing amendments and remarks the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-4 to allow these claims together with new claims 5-9 and to find this application to be in allowable condition.

If the Examiner believes that a conference would be of value in expediting the prosecution of this application, the Examiner is invited to telephone the undersigned to arrange for such a conference.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Respectfully submitted,
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Version with markings to show changes made.

In the Specification:

Please replace the paragraph at page 1, lines 1-5, with the following headings and paragraph:

--BACKGROUND OF THE INVENTION

Field of the invention

The invention relates to an extruder die head, preferably a blown film head, comprising a central annular channel, which is provided with an annular outlet die and into whose outer limiting wall empty annular slits, which feed a polymer melt and which constitute the smaller diameter openings of truncated channels, formed between the internal and external shells of stacked, conical insert members

Related Art--

Please replace the paragraph at page 2, lines 11-13, with the following heading and paragraph:

--SUMMARY OF THE INVENTION

Therefore, the object of the invention is to provide an extruder die head of the class described in the introductory part. This extruder die head facilitates the extrusion of plastic tubes with arbitrary layers, but is characterized by a significantly

shorter construction height.--

Please replace the paragraph at page 3, line 16, with the following heading and paragraphs:

--These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

One embodiment of the invention is explained in detail below with reference to the drawings.

DESCRIPTION OF THE DRAWINGS--

Please replace the paragraph at page 4, lines 3-5, with the following heading and paragraph:

--DESCRIPTION OF THE INVENTION

Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and

scope of the invention will become apparent to those skilled in the art from this detailed description.

Figure 1 is a schematic drawing of a sectional view of a blown film die head, where five annular or conical channels, which feed different types of polymer melts, empty into a central annular channel 1.--

Please replace the paragraph beginning at page 4, line 21, through page 5, line 6, with the following rewritten paragraph:

--Mounted on the conical rings 8, 10 are the conical rings 9, 11, which define with the conical external shell areas of the rings 8, 9 the conical melt feed channels, which in turn empty into the central annular channel. The external shell areas of the rings 8, 9 are spiral grooves, whose height tapers off toward the top. The bottom grooves with the greatest depth empty into the melt feeding channels 15, 16. Mounted on the top conical inserts 9, 11 are inside and outside holding rings 17, 18, between which the central annular channel 1 is defined with an annular outlet slit 19. An easy method for assembling the blown film die head together with the bottom cover [12] 2 is to connect the rings 17, 18 with tightening screws.

The inside rings and the bottom cover 2 exhibit aligned axial passages, which from a passage channel, which houses the lines to feed in and exhaust the blowing air for the blown film die

head. The blown film die head, shown in Figure 2, exhibits in principle the same construction. The distinction between it and the blown film die head, depicted in Figure 1, lies only in the fact that between the inside and outside conical rings 8, 10 and the top inside and outside rings 9, 11 there are other inside conical rings 21, 22 and other outside conical rings 23, 24, which are designed analogously to the rings 8, 10. This arrangement of the additional conical rings makes it possible to feed, not five melts, but nine different melts with the blown film die head of Figure 2 for the purpose of producing a nine layered plastic tube.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and, accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.--

In the Claims:

Please amend claims 1-4, as follows:

1. (Amended) [Extruder] An extruder die head, [preferably a blown film head,] comprising a central annular channel [(1)], which is provided with an annular outlet die [(19)] and into whose outer limiting wall empty annular slits, which feed a polymer melt and

which [constitute] form [the] smaller diameter openings of truncated channels [(12)], formed between [the] internal and external shells of stacked, conical insert members, [(5, 10, 11, 23, 24)],

characterized in

that the] said annular slits, feeding [the] said polymer melts, also empty into [the] an inside wall of [the] said central annular channel [(1)], said annular slits being [the] smaller diameter openings of truncated channels [(13)], formed between [the] internal and external shells of stacked conical internal insert members [(4, 8, 9, 21, 22)].

2. (Amended) [Blown film] The extruder head, as claimed in claim 1, [characterized in that the] wherein said internal and external shells of each insert member define [the] truncated conical channels for feeding [the] said polymer melts into [the] said central annular channel [(1)].

3. (Twice Amended) [Blown film] The extruder head, as claimed in claim 1, [characterized in that the] wherein said internal and external annular slits lie in the same radial plane.

4. (Twice Amended) [Blown film] The extruder head, as claimed in claim 1, [characterized in that the] wherein said internal and

external shells of [the] said conical insert members are defined by two counter rotating spiral channels [(6)], whose depth tapers off in [the] a direction of [the] each smaller diameter opening.